

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

10 November 2000 (10.11.00)

International application No.

PCT/KR00/00270

Applicant's or agent's file reference

2000-PCT-004

International filing date (day/month/year)

28 March 2000 (28.03.00)

Priority date (day/month/year)

29 March 1999 (29.03.99)

Applicant

JUN, Young-Kwon

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

17 August 2000 (17.08.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Zakaria EL KHODARY

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

特許庁	代理	次長	部長	副所長	所長	會長	供
⑤			PCT	E	7/2/2	From the INTERNATIONAL BUREAU	
NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES (PCT Rule 47.1(c), first sentence)						To: YIM, Suk Jae Poonglim Building 8th floor 823-1, Yeoksam-dong Kangnam-ku Seoul 135-784 RÉPUBLIQUE DE CORÉE	
Date of mailing (day/month/year) 05 October 2000 (05.10.00)							
Applicant's or agent's file reference 2000-PCT-004						IMPORTANT NOTICE	
International application No. PCT/KR00/00270			International filing date (day/month/year) 28 March 2000 (28.03.00)			Priority date (day/month/year) 29 March 1999 (29.03.99)	
Applicant TRUST & OBEY CO., LTD. et al							

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
BR,CA,CN,DE,EA,EP,GB,ID,IL,IN,JP,MX,NZ,PL,SG,VN,ZA

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
 05 October 2000 (05.10.00) under No. WO 00/58964

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

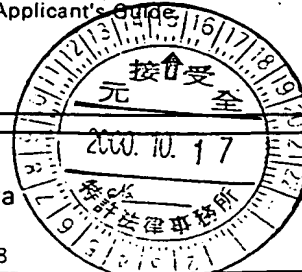
It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.



The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
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PCT COOPERATION TREATY

PCT

擔當	代理	次長	部長	From the INTERNATIONAL BUREAU	供
				To:	

NOTIFICATION OF RECEIPT OF
RECORD COPY

(PCT Rule 24.2(a))

Poonglim Building
8th floor
823-1, Yeoksam-dong
Kangnam-ku
Seoul 135-784
RÉPUBLIQUE DE CORÉE

Date of mailing (day/month/year) 09 May 2000 (09.05.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 2000-PCT-004	International application No. PCT/KR00/00270

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

TRUST & OBEY CO., LTD. (for all designated States except US)
JUN, Young-Kwon (for US)

International filing date : 28 March 2000 (28.03.00)
Priority date(s) claimed : 29 March 1999 (29.03.99)
20 January 2000 (20.01.00)

Date of receipt of the record copy
by the International Bureau : 14 April 2000 (14.04.00)

List of designated Offices :

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

National : AU, BR, CA, CN, DE, GB, ID, IL, IN, JP, MX, NZ, PL, SG, US, VN, ZA

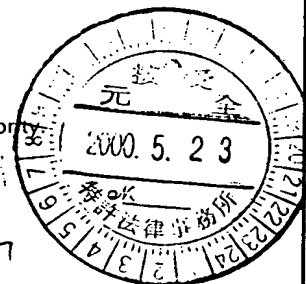
ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase
☒ confirmation of precautionary designations
☒ requirements regarding priority documents

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.



The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

R. Raissi

Telephone No. (41-22) 338.83.38

INFORMATION ON TIME LIMITS FOR ENTERING THE NATIONAL PHASE

The applicant is reminded that the "national phase" must be entered before each of the designated Offices indicated in the Notification of Receipt of Record Copy (Form PCT/IB/301) by paying national fees and furnishing translations, as prescribed by the applicable national laws.

The time limit for performing these procedural acts is **20 MONTHS** from the priority date or, for those designated States which the applicant elects in a demand for international preliminary examination or in a later election, **30 MONTHS** from the priority date, provided that the election is made before the expiration of 19 months from the priority date. Some designated (or elected) Offices have fixed time limits which expire even later than 20 or 30 months from the priority date. In other Offices an extension of time or grace period, in some cases upon payment of an additional fee, is available.

In addition to these procedural acts, the applicant may also have to comply with other special requirements applicable in certain Offices. **It is the applicant's responsibility** to ensure that the necessary steps to enter the national phase are taken in a timely fashion. Most designated Offices do not issue reminders to applicants in connection with the entry into the national phase.

For detailed information about the procedural acts to be performed to enter the national phase before each designated Office, the applicable time limits and possible extensions of time or grace periods, and any other requirements, see the relevant Chapters of Volume II of the PCT Applicant's Guide. Information about the requirements for filing a demand for international preliminary examination is set out in Chapter IX of Volume I of the PCT Applicant's Guide.

GR and ES became bound by PCT Chapter II on 7 September 1996 and 6 September 1997, respectively, and may, therefore, be elected in a demand or a later election filed on or after 7 September 1996 and 6 September 1997, respectively, regardless of the filing date of the international application. (See second paragraph above.)

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

CONFIRMATION OF PRECAUTIONARY DESIGNATIONS

This notification lists only specific designations made under Rule 4.9(a) in the request. It is important to check that these designations are correct. Errors in designations can be corrected where precautionary designations have been made under Rule 4.9(b). The applicant is hereby reminded that any precautionary designations may be confirmed according to Rule 4.9(c) before the expiration of 15 months from the priority date. If it is not confirmed, it will automatically be regarded as withdrawn by the applicant. There will be no reminder and no invitation. Confirmation of a designation consists of the filing of a notice specifying the designated State concerned (with an indication of the kind of protection or treatment desired) and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.

REQUIREMENTS REGARDING PRIORITY DOCUMENTS

For applicants who have not yet complied with the requirements regarding priority documents, the following is recalled.

Where the priority of an earlier national, regional or international application is claimed, the applicant must submit a copy of the said earlier application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date, provided that any such priority document may still be submitted to the International Bureau before that date of international publication of the international application, in which case that document will be considered to have been received by the International Bureau on the last day of the 16-month time limit (Rule 17.1(a)).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit and may be subjected by the receiving Office to the payment of a fee (Rule 17.1(b)).

If the priority document concerned is not submitted to the International Bureau or if the request to the receiving Office to prepare and transmit the priority document has not been made (and the corresponding fee, if any, paid) within the applicable time limit indicated under the preceding paragraphs, any designated State may disregard the priority claim, provided that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity to furnish the priority document within a time limit which is reasonable under the circumstances.

Where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit is the filing date of the earliest application whose priority is claimed.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

<p>To:</p> <p>YIM. Suk Jae</p> <p>8th Fl, Poonglim Bldg., 823-1, Yoksam-dong, Kangnam-ku, Seoul 135-784, Republic of KOREA</p>	<p>NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION</p> <p>(PCT Rule 44.1)</p>
<p>Date of mailing (day/month/year) 02 AUGUST 2000 (02.08.2000)</p>	
<p>Applicant's or agent's file reference</p> <p>2000-PCT-004</p>	<p>FOR FURTHER ACTION See paragraphs 1 and 4 below</p>
<p>International application No.</p> <p>PCT/KR00/00270</p>	<p>International filing date (day/month/year)</p> <p>28 MARCH 2000 (28.03.2000)</p>
<p>Applicant</p> <p>TRUST & OBEY CO., LTD. et al</p>	

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

<p>Name and mailing address of the ISA/KR</p> <p>Korean Industrial Property Office Government Complex-Taejon, Dunsan-dong, Se-ku, Taejon Metropolitan City 302-701, Republic of Korea</p> <p>Facsimile No. 82-42-472-7140</p>	<p>Authorized officer</p> <p style="text-align: center;">COMMISSIONER</p> <p>Telephone No. 82-42-481-5131</p>
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty and of the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended ?

Under Article 19, only the claims may be amended.

- During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examination Authority.

Upon entry into the national phase, all part of the international application may be amended under Article 28 or, where applicable, Article 41.

When ? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the application time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments ?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How ? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are numbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments ?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amendment claims. It should not be confounded with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

서식 PCT/ISA/220에 대한 설명(NOTE)

이 설명은 조약 제19조의 규정에 의한 보정에 관한 기본적인 안내입니다. 이는 특허협력조약, 조약규칙 및 조약시행세칙에 의한 요건에 기초하고 있습니다. 이 설명과 앞서 언급된 요건 사이에 상이점이 있는 경우에는 후자가 적용됩니다. 보다 자세한 정보에 대하여는 WIPO 발행 PCT 출원인 안내를 참조.

이 설명에서 "조약", "조약규칙" 및 "조약시행세칙"이라 함은 각각 특허협력조약, 특허협력조약에 의한 시행규칙 및 특허협력조약에 의한 시행세칙을 말합니다.

조약 제19조의 규정에 의한 보정에 관한 안내

국제조사보고서를 수령한 후 출원인은 1회에 한하여 국제출원의 청구의 범위를 보정할 기회를 가집니다. 국제출원의 모든 부분(청구의 범위, 명세서 및 도면)은 국제예비심사 절차 동안에 보정이 가능하므로, 예를 들어 출원인이 가보호(provisional protection)를 위하여 조약 제19조의 규정에 의한 보정이 공개될 것을 희망하는 경우 또는 국제공개전에 청구의 범위를 보정할 다른 이유가 있는 경우를 제외하고는 통상 조약 제19조의 규정에 의한 보정을 할 필요는 없습니다. 또한 가보호는 일부국가에서만 가능함을 명심해야 합니다.

국제출원의 어느 부분을 보정할 수 있는가?

조약 제19조의 규정에 의하여 청구의 범위만을 보정할 수 있습니다.

국제단계중에는 조약 제34조의 규정에 의하여 국제예비심사기관에 대하여 청구의 범위를 보정(추가 보정도 가능)할 수 있습니다. 명세서 및 도면은 조약 제34조의 규정에 의하여 국제예비심사기관에 대하여만 보정(추가 보정도 가능)할 수 있습니다.

국내단계를 개시할 때 국제출원의 모든 부분은 조약 제28조 또는 제41조(해당하는 경우)의 규정에 의하여 보정할 수 있습니다.

기간은? 국제조사보고서 송부일로부터 2월 또는 우선일로부터 16월중 늦게 만료하는 날. 다만, 기간 만료후 국제공개의 기술적 준비가 완료되기 전에 국제사무국에 보정서가 수리된 경우에는, 기간내에 수리된 것으로 봅니다(조약규칙 46.1).

보정서를 제출하지 않아야 할 곳은?

보정서는 수리관청 또는 국제조사기관이 아니라 국제사무국에 제출하여야 합니다(조약규칙 46.2).

국제예비심사청구서가 제출된 경우에는 아래 참조.

방법은? 1 또는 2이상의 청구항 전부의 삭제, 1 또는 2이상의 새로운 청구항의 추가 또는 1또는 2이상의 출원시 청구항의 변경을 통하여 이루어짐.

보정에 의하여 최초 출원시의 용지와 달라지는 청구항의 각 용지에 대하여는 대체용지를 제출하여야 합니다.

대체용지상의 모든 청구항은 아라비아 숫자로 번호를 부여하여야 합니다. 청구항이 삭제된 경우에는 타 청구항에 대하여 번호를 다시 부여할 필요는 없습니다. 번호를 다시 부여한 경우에는 항상 연속된 번호를 부여해야 합니다(조약시행세칙 205(b)).

보정은 당해 국제출원의 공개언어로 하여야 합니다.

보정서에 수반되는/수반되어야 하는 서류는?

서한(조약시행세칙 205(b)):

보정서는 서한과 함께 제출하여야 합니다.

서한은 국제출원 및 보정된 청구의 범위와 함께 공개되지 않습니다. 서한은 "조약 제19조(1)의 규정에 의한 설명서"와 혼동해서는 안됩니다(아래 조약 제19조(1)의 규정에 의한 설명서"참조).

서한은 출원인의 선택에 따라 영어 또는 불어로 작성하여야 합니다. 다만, 국제출원언어가 영어인 경우에는 영어로, 국제출원언어가 불어인 경우에는 불어로 작성하여야 합니다.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2000-PCT-004	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below	
International application No. PCT/KR00/00270	International filing date (day/month/year) 28 MARCH 2000 (28.03.2000)	(Earliest) Priority Date (day/month/year) 29 MARCH 1999 (29.03.1999)
Applicant TRUST & OBEY CO., LTD. et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawing to be published with the abstract is Figure No. 3

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

☐ None of the figures.

A. CLASSIFICATION OF SUBJECT MATTER**IPC7 G11B 20/04**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G11B 20/04 G11B 20/10 H04M 11/00 G06F 3/16 G06F 9/44 G06F 17/07 G10K 3/00 G06F 3/13

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patents and Applications for Inventions since 1975Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, PAJ "TTS" "TEXT" "SPEECH" "SCANNED" "MEMORY"**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 4,996,707 A (SARA O'MALLEY et. al) 29 FEBRUARY 1991. Claim 1, 4, 7, 12, 20, 28	1-5, 7, 8, 12, 13
Y	JP 5-333891 A (SHARP CO.) 17 DECEMBER 1993. Claim 1, 2	1-5, 7, 12, 13
Y	DE 4123465 A (KAMPPETER BERND) 16 JULY 1991, see the whole document	1-5, 7, 12, 13
Y	DE 3901023 A (RITTER ULRICH DIPL ING) 14 JANUARY 1989, see the whole document	1-5, 7, 12, 13
Y	US 3704345 A (BELL TELEPHONE LAB. INC.) 19 MARCH 1971, see the whole document	1-5, 7, 12, 13
A	KR 97-002706 A (ETRI) 12 MAY 1998, see the whole document	1-5
A	EP 505304 A2 (IBM CO.) 2 NOVEMBER 1992, see the whole document	1-5

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

31 JULY 2000 (31.07.2000)

Date of mailing of the international search report

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Name and mailing address of the ISA/KR

Korean Industrial Property Office
Government Complex-Taejon, Dunsan-dong, Se-ku, Taejon
Metropolitan City 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

SEO, Hawthorne

Telephone No. 82-42-481-5693

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00270**A. CLASSIFICATION F SUBJECT MATTER****IPC7 G11B 20/04**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G11B 20/04 G11B 20/10 H04M 11/00 G06F 3/16 G06F 9/44 G06F 17/07 G10K 3/00 G06F 3/13

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patents and Applications for Inventions since 1975Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, PAJ "TTS" "TEXT" "SPEECH" "SCANNED" "MEMORY"**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,996,707 A (SARA O'MALLEY et. al) 29 FEBRUARY 1991, Claim 1, 4, 7, 12, 20, 28	1-5, 7, 8, 12, 13
Y	JP 5-333891 A (SHARP CO.) 17 DECEMBER 1993, Claim 1, 2	1-5, 7, 12, 13
Y	DE 4123465 A (KAMPPETER BERND) 16 JULY 1991, see the whole document	1-5, 7, 12, 13
Y	DE 3901023 A (RITTER ULRICH DIPL ING) 14 JANUARY 1989, see the whole document	1-5, 7, 12, 13
Y	US 3704345 A (BELL TELEPHONE LAB. INC.) 19 MARCH 1971, see the whole document	1-5, 7, 12, 13
A	KR 97-002706 A (ETRI) 12 MAY 1998, see the whole document	1-5
A	EP 505304 A2 (IBM CO.) 2 NOVEMBER 1992, see the whole document	1-5

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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- "E" earlier application or patent but published on or after the international filing date
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- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

31 JULY 2000 (31.07.2000)

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SEO, Hawthorne

Telephone No. 82-42-481-5693



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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2000-PCT-004	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR00/00270	International filing date (day/month/year) 28 MARCH 2000 (28.03.2000)	Priority date (day/month/year) 29 MARCH 1999 (29.03.1999)
International Patent Classification (IPC) or national classification and IPC IPC7 G11B 20/04		
Applicant TRUST & OBEY CO., LTD. et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

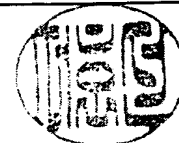
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 17 AUGUST 2000 (17.08.2000)	Date of completion of this report 31 AUGUST 2001 (31.08.2001)
Name and mailing address of the IPEA/KR Korean Intellectual Property Office Government Complex-Daejeon, Dunsan-dong, Seo-gu, Daejeon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer SEO, Hawthorne Telephone No. 82-42-481-5693



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR00/00270

1. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide** and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet _____

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR00/00270

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	6, 9-11, 14, 15	YES
	Claims	1-5, 7, 8, 12, 13	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1 : US-A-4,996,707

D2 : JP-5-333891

D3 : US-A-3,704,345

D1 is considered to represent the most relevant state of the art. It discloses a computer device for audible processing of electronic documents, which show graphic image input devices to respond to a text-to-speech conversion.

The subject matter of present clames 1 to 15 differs there from in that OCR, keyboard and network devices are added to reproduce compressed digital voice.

Thus the novelty of the subject matter claimed can be acknowledged.

D1 discloses portable TTS device, said a number of electronic documents in digital data format are coupled to and stored within memory, within the computer device via an interface , as strings of characters which may comprise encoded words, syllables or phonetic codes.

Although not included, it is not explicitly specified in D1 that digital voice data stored are compressed. However, it is widely known in the art D2 and D3 to utilize such voice store-reproduce devices.

Therefore Claim 1-5, 7, 8, 12, 13 lacks an inventive step (Article33(3) PCT).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR00/00270

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
US 4,996,707 A	29/02/1991	09/02/1989	
JP 5-333891	17/12/1993	29/05/1992	
US 3,704,345 A	19/04/1971	19/03/1971	

2. Non-written disclosures (Rule 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure (day/month/year)</u>	<u>Date of written disclosure referring to non-written disclosure (day/month/year)</u>



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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KR

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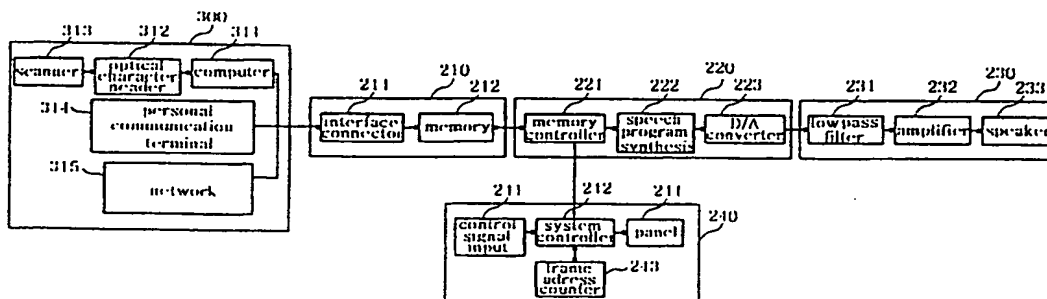
(81) Designated States: AU, BR, CA, CN, DE, GB, ID, IL, IN, JP, MX, NZ, PL, SG, US, VN, ZA, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published

With international search report.

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: AN APPARATUS FOR REPRODUCING DIGITAL VOICE



(57) Abstract

The present invention relates to an information device, which converts those data stored in the form of digital signs in a memory device into analog signs audible to the ear like human voice, thereby facilitating the availability of a vast quantity of information through reproduction into voice of the literal text input by the computer keyboard, data recorded in voice of information printed in type in books or magazines, and such other data originally in letters but rendered digital by means of the scanner and optical character reader (OCR). The apparatus for reproducing digital voice of the present invention consists of a memory medium and a reproduction device proper, the data stored in the memory medium being information converted into human voice, literal data input by the computer keyboard, vocal data in human voice, and such other literal data as are converted from type into digital signs by the scanner and optical character reader. For the memory medium, such semiconductor memories as ROM (Read Only Memory), flash memory, and FRAM (ferroelectrics random access memory) along with such other recording media as compact disks can be made use of.

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3/parts

5 An Apparatus for reproducing digital voice

Field of the Invention

10 The present invention relates to an apparatus for reproducing digital voice, and particularly to an apparatus for reproduction, which can output such vocal data as are stored in a given memory device and other literal data in a digital form, by converting them into audible voice.

15 Background Art

By means of reproducing such data as the literal data input by the computer keyboard, such vocal data as are converted from printing in type in books and magazines, and such data as are provided by a memory device which stores literal data converted from
20 material in type by the scanner or the optical character reader (OCR), viz. by means of reproducing all these the present invention facilitates the availability of a vast quantity of information.

Advance of electronic communications industry and progress of such information
25 implements as internet and other communication facilities along with that of the peripheral

software industry are resulting in a change, in conveyance of information between individuals, from exchange of printed media to that of electronic documents---transforming conventional office rooms to paperless ones.

5 In conveyance of information for the masses, viz. newspapers, magazines, books, however, the greatest majority is still making use of printed media, and in the cases where the information is of a tremendous quantity an enormous space will be required for its storage, not to say of the forbidding difficulty in carrying it on a person for its advantageous use.

10

As a consequence, an electronic book capable for reproduction of such data in the form of images as literal data in type and pictorials by means of a display device has been under assiduous study as a new information medium at home and abroad in these days.

15 Since such a portable medium as electronic book, however, is for reading, it invariably requires a display device of a certain magnitude, and also requires an input-output drive like the keyboard of a computer, entailing a size, weight, and production cost bordering on those for a portable computer called the note-book. When such a one is put to use in a transportation means, it will piteously shake, aggravating fatigue of the user's
20 eye---a serious drawback.

Summary of the Invention

The present invention is intended to provide an apparatus for reproducing digital
25 voice, that is, for converting literal information into human voice audible to the ear for

comprehension.

Another objective of the present invention is to provide a reproduction device which can change the memory media which store compressed digital vocal information from one
5 to another with ease.

Yet another objective is to provide an apparatus which can supply information to persons who are not enabled to read literal data, too, by means of converting such literal information in a changed form of vocal information.

10

Still another objective is to provide an apparatus which converts literal information alone into vocal information for storage, and can reproduce it at need, thereby to provide an apparatus of relatively simple construction.

15

A fifth objective is to provide an apparatus for reproducing digital voice, which receives literal information input by the computer keyboard and reproduces it into vocal information.

20

A sixth objective is to provide an apparatus which can reproduce literal information in print by converting it into vocal information by means of a device synthesizing it into vocal (TTS: text to speech), thereby to provide an apparatus of simple construction.

25

A seventh objective is to provide an apparatus for reproducing digital voice, the apparatus having an interface connector, equipped to it, capable for connection with other, extraneous implements so as to make it easy to exchange the data in a memory medium for

any in another medium.

To achieve all these objectives, the apparatus of the present invention characteristically consists of a memory medium for storage of data, a restoration section
5 for converting the data stored in the memory medium into vocal data, an output section for playing in audible voice the vocal data provided from the restoration section, and a control section which, by choice of the user, outputs signals for control of both the re-production section and output section.

10 A particular characteristic feature of the apparatus of the present invention is that the data stored in the memory medium is literal text data.

Another particular characteristic feature of the apparatus of the present invention is that the data stored in memory medium are compressed vocal data.

15

Brief Description of Drawings

Fig. 1 is a block diagram showing a preferred embodiment of an apparatus in accordance with the present invention.

20

Fig. 2 is a block diagram of an alternate embodiment for an apparatus of the present invention.

Fig. 3 is a block diagram illustrating the connection of the apparatus for reproducing
25 digital voice of the present invention with other implements.

Symbols for Main Components in Drawings

110: memory and interface connector section

120: restoration section

130: output section

140: control section

300: extraneous input section

Description of the Preferred Embodiments

Below, the construction of the apparatus for reproducing digital voice of the present invention is described together with its functions, the attached diagrams being made reference to when need be. Fig. 1 is a block diagram illustrating the construction of the apparatus for reproducing digital voice of the present invention.

20

The apparatus consists of an interface connector section 111 for connection with other implements, a memory medium 112 storing compressed digital voice data made by conversion of letters into sounds, a restoration section 120 for restoration of the vocal data stored in the memory medium 112 from digital to analog data, an output section 130 for conversion of the data provided by the restoration section 120 into audible voice

perceptible to the user, and a control section 140 to output signals, at the user's choice, for control of the restoration section 120 and the output section 130.

The interface connector section 111 can be materialized by the use of an infrared ray communication port, RS-232C and USB ports, and the like.

The memory medium stores vocal data, converted from literal data and compressed for storage, for the storage which such elements as semiconductor memory, compact disks, and the like can be made use of, and for the semiconductor memory such semiconductor elements as ordinary ROM, flash memory, or ferroelectrics random access memory can be used. To achieve the objectives of the present invention the memory medium has to be in a form which can be freely attached to or pulled out from the reproduction section, and as prerequisite needs to be easily exchangeable.

The restoration section 120 consists of a memory control 121 which reads the data in the memory medium selectively in obedience to the control signal from the control section 140 and of a digital-analog converter 123, which converts to analog signals and outputs the digital data provided by a decoder 122 which expands and re-stores the data provided through the memory control 121.

20

The output section 130 consists of a low pass filter 131 which receives analog data from the restoration section 120 and so filters out the high frequency wave signals mixed in the analog data that it can pass only the frequency waves belonging to the band audible to the user; an amplifier 132 which receives and amplifies the vocal signals filtered and passed by the low pass filter 131; and a speaker 133 which outputs the vocal signals

25

amplified by the amplifier 132 by converting them into audible voices.

The control section 140 consists of an adjustment signal input section 141, which contains a number of adjusters to receive input of the user's desired adjustments, a system
5 controller 142 which recognizes the signals provided by the adjustment signal input section 141 and outputs proper control signals, a frame address calculator 143 which tells the locations of digital data in answer to the control data from the system controller 142, and a panel section 144 which displays the adjustment signals provided by the adjustment signal input section 141 and the present state of operation of the reproduction device in a way
10 understandable to the user. In case the memory medium be a compact disk a servo control (not illustrated) has to be attached for control of its drive.

The adjustment signal input section 141 is equipped with a function key as is usual with most reproduction devices for reproduction, stop, forward move, backward move,
15 repetition within sections, etc. As the user presses the function key, the system controller 142 recognizes it and outputs proper control signals. Such a control signal is conveyed to the frame address calculator 143, and it controls the memory control 121 according to the results of the relevant address counting, thus determining the address of a relevant memory, detecting the position of the digital, and providing it.

20

In order that digital vocal data may be restored to their original magnitude the decoder 122 expands and restores to the original magnitude such digital vocal signals as have been compressed in a ratio of, say 1 : 16, whereby it is made possible to in-crease the time for output of the vocal information. The D-A converter 123 converts the restored
25 digital vocal signals into analog vocal signals and outputs them to the low pass filter 131.

The low pass filter 131 filters the unnecessary high frequency wave signal elements beyond the audible vocal zone off the provided analog vocal signals and passes the remaining analog vocal signals on to the amplifier 132. The amplifier 132 receives the filtered analog vocal signals, amplifies them, and provides them so as to be output through
5 the speaker 133.

The system controller 142 can make use of a microprocessor, a digital signal processor, or the like, and has a function of controlling main components in the system.

10 For instance, if an input key works, this information processing element sends off a PCM (pulse code modulation) signal to a proper element to induce action. In the case of restoration of an information signal, the system controller 142 sends off a status request command to the memory control 121 and receives compressed digital vocal data in a 16 bit format. At this time, in order to assign positions to the compressed digital vocal data a
15 certain address is registered with a register inside the system controller 142.

The system controller 142 receives byte information stored in the form of files from the memory control 121 in regular order by means of the frame address calculator 143. In other words, the system controller 142 monitors conveyance of data and, when the D-A
20 converter 123 gets ready, now reads data at a certain position by the bite unit, and conveys them to the decoder 122. The decoder 122 receives data in a unit of 28 and the like, expands them by means of pulse code modulation, and outputs them. The thus output signals are converted into analog signals by means of the D-A converter 123. The analog vocal signals which are output from the D-A converter 123 are cleared of the unnecessary
25 noise by the low pass filter 131, amplified by the amplifier 132, and are output in the form

of audible voice through the speaker 133. The system controller 142 contains a logic circuit, whereby, in case the earphone jack is inserted with an ear phone, detects this and stops operation of the speaker 133. In case the memory medium is a flash memory it can be connected with the reproducing device by means of a 68-pin PCMCIA connector or the
5 like.

In case the memory medium is a compact disk the system control section 140 has to be equipped with a servo control device for control of the compact disk, and regarding the other matters, no further description is considered necessary since pertinent techniques
10 are all already publicly known.

Fig. 2 is a block diagram illustrating another example of embodiment of the present invention, and this example covers the case, where the data stored in the memory medium are literal data, unlike in Fig. 1. At this time, the literal data can be provided in
15 compression, depending upon the different types of the memory media.

This embodiment consists of a memory medium storing literal data and a restoration section 220, the latter having functions including that of converting the digital literal data stored in the memory medium 212 into voice. The memory medium contains literal data
20 entered by the computer keyboard and other digital literal data rendered from printed literal data.

The restoration section 220, unlike at the time of reproducing already digitalized vocal data, contains a TTS (text to speech) device 222 for conversion of digital literal data
25 to vocal.

Since the construction of the apparatus for reproducing digital voice, except for the TTS device 222, is the same as Fig. 1, description of the memory medium, inter-face connector section 210, output section 230, and control section 240 is omitted.

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Fig. 3 is a block diagram illustrating how the apparatus for reproducing digital voice of the present invention is connected with other, extraneous implements. Because the interface connector 211, easily connectable with extraneous implements, is installed on the apparatus for reproducing digital voice, it is possible to down load necessary data for convenient use. For instance, by undertaking a processing of scanning the images of printed literal data and converting them into digital letters by an optical character reader (OCR) it is possible to make use of them in the form of digital literal data. At this time, the digital literal data are converted into voice by means of a TTS device 222.

15 Also by connecting a personal terminal device with the interface connector 211 of the apparatus for reproducing digital voice, it is possible to down load literal data on Internet of other information network service by the apparatus for their reproduction. Moreover, if a network device 315, connected with Internet and other data bases, is connected with the interface connector 211 of the apparatus, all the literal information such as those electronic letters on Internet, e-mail, could be down loaded for reproduction in voice.

Effects of Invention

25 As has been described above, the present invention, capable for reproducing in-

formation rendered in digital data to be heard with the ear, makes it possible to reduce the size, weight, and production cost of the apparatus, while at the same time facilitating the availability of information even riding in a means of transport. In especial, in a vehicle the subject apparatus, unlike the existing electronic book which reproduces data on a visual
5 monitor, can be free of disturbance in vision, even if it is inevitably subjected to shakes.

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Claims

1. An apparatus for reproducing digital voice, comprising:
 - 5 a memory medium for storing digital data;
 - a restoration section for restoring digital data stored in said memory medium into vocal data;
 - 10 an output section for outputting said vocal signals provided by said restoration section in audible voice; and,
 - a control section for outputting signals so as to control said restoration section and said output section according as the user desires.
- 15 2. An apparatus for reproducing digital voice according to Claim 1, which is characterized in that said digital data stored in said memory medium are compressed vocal data.
- 20 3. An apparatus for reproducing digital voice according to Claim 2, wherein said restoration section comprises:
 - a memory controller for reading said digital data stored in said memory medium selectively in obedience to the control signals provided by said control section;

a decoder for amplifying and restoring to their original magnitude said vocal data provided through said memory controller; and,

a D-A (digital-analog) converter for outputting the digital data provided by said
5 decoder after converting them to analog signals.

4. An apparatus for reproducing digital voice according to Claim 1, wherein the digital data stored in said memory medium are literal text data and said restoration section comprises a TTS (text-to-speech) vocal synthesizer for converting said text data into vocal
10 signals.

5. An apparatus for reproducing digital voice according to Claim 4, further comprises an interface connector for conveyance of data provided by other implements to said memory medium.

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6. An apparatus for reproducing digital voice according to Claim 5, wherein said interface connector is an infrared ray communication port.

7. An apparatus for reproducing digital voice according to Claim 4, wherein said
20 literal text data are such literal text data converted by means of an optical character reader from data which, in turn, have been converted to images by a scanner.

8. An apparatus for reproducing digital voice according to Claim 4, wherein said literal text data are provided by means of inputting means as the computer keyboard and
25 others.

9. An apparatus for reproducing digital voice according to Claim 4, wherein said literal text data are provided by net-work devices.

5 10. An apparatus for reproducing digital voice according to Claim 5, wherein said literal text data are provided by a personal communication terminal device connected with said interface connector.

11. An apparatus for reproducing digital voice according to any one of Claims 1
10 through 10, wherein said control section comprising:

an adjustment signal input section having a number of adjustment keys to receive the input of the user's desires for control;

15 a system controller for recognizing signals provided by said adjustment signal input section and outputting relevant control signals; and,

a frame address calculator for providing address information of digital data in obedience to the control signals transmitted from said system controller.

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12. An apparatus for reproducing digital voice according to any one of Claims 1 through 10, wherein said output section comprising:

a low pass filter for filtering off high frequency band signals mixed in the analog
25 data provided by said D-A (digital-analog) converter and passing only the remaining

signals as belong to the band audible to human ear;

an amplifier for receiving the vocal signals passed on by said low pass filter and amplifying them; and

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a speaker for outputting the vocal signals amplified by said amplifier after converting them to audible voice.

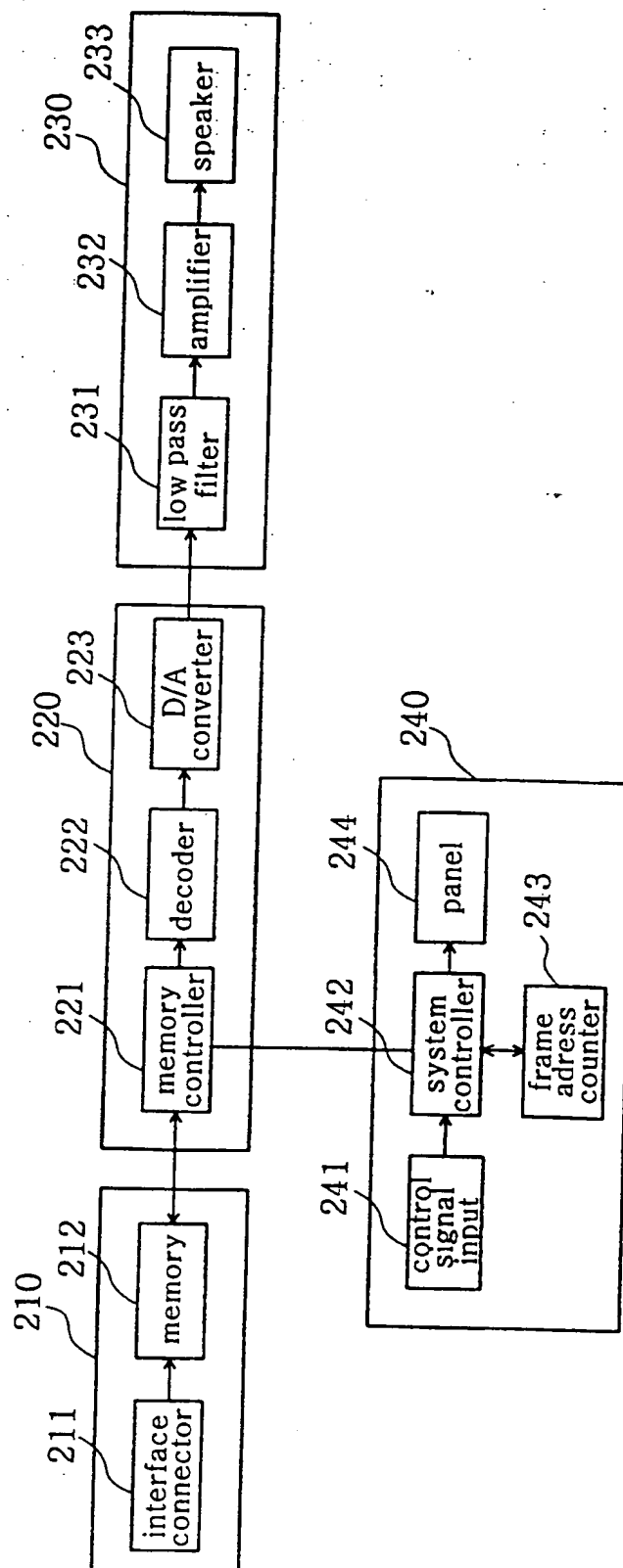
13. An apparatus for reproducing digital voice according to Claim 1, wherein said
10 memory medium is a semiconductor memory device.

14. An apparatus for reproducing digital voice according to Claim 1, wherein said memory medium is a compact disk.

15 15. An apparatus for reproducing digital voice according to Claim 14, wherein said control section further comprises a servo control section for driving said compact disk.

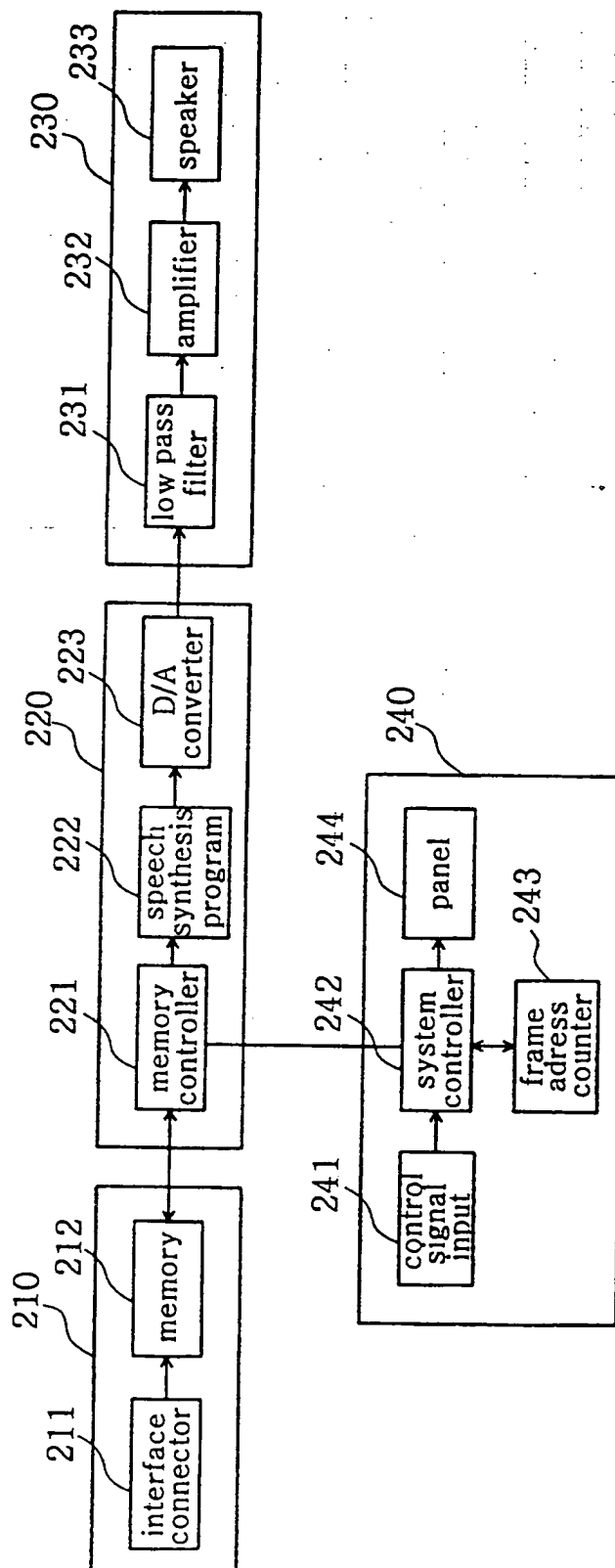
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FIG. 1



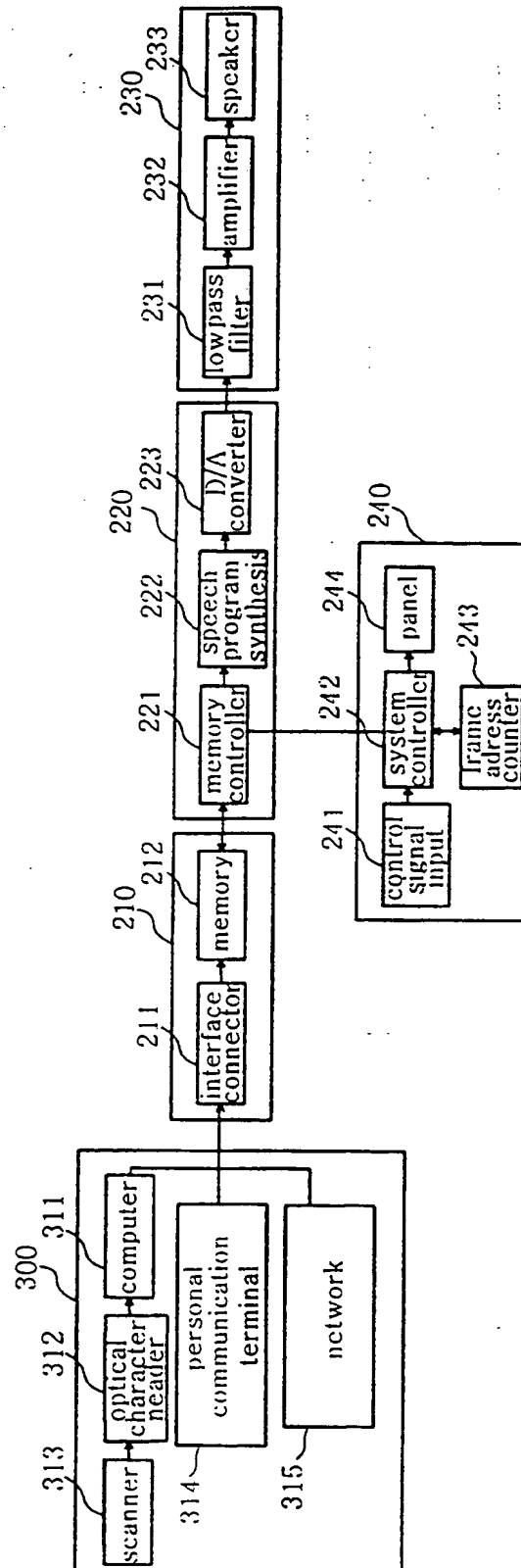
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FIG. 2



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FIG. 3



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00270**A. CLASSIFICATION OF SUBJECT MATTER**

IPC7 G11B 20/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G11B 20/04 G11B 20/10 H04M 11/00 G06F 3/16 G06F 9/44 G06F 17/07 G10K 3/00 G06F 3/13

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patents and Applications for Inventions since 1975Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, PAJ "TTS" "TEXT" "SPEECH" "SCANNED" "MEMORY"**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,996,707 A (SARA O'MALLEY et. al) 29 FEBRUARY 1991, Claim 1, 4, 7, 12, 20, 28	1-5, 7, 8, 12, 13
Y	JP 5-333891 A (SHARP CO.) 17 DECEMBER 1993, Claim 1, 2	1-5, 7, 12, 13
Y	DE 4123465 A (KAMPPETER BERND) 16 JULY 1991, see the whole document	1-5, 7, 12, 13
Y	DE 3901023 A (RITTER ULRICH DIPL ING) 14 JANUARY 1989, see the whole document	1-5, 7, 12, 13
Y	US 3704345 A (BELL TELEPHONE LAB. INC.) 19 MARCH 1971, see the whole document	1-5, 7, 12, 13
A	KR 97-002706 A (ETRI) 12 MAY 1998, see the whole document	1-5
A	EP 505304 A2 (IBM CO.) 2 NOVEMBER 1992, see the whole document	1-5

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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